AMENDMENTS TO THE CLAIMS

1. (ORIGINAL) A method in an integrated network switch having a switching module, the integrated network switch configured for switching a layer 2 packet, the method comprising:

determining whether the layer 2 packet includes prescribed layer 3 packet information;

selectively performing layer 3 switching based on the determined presence of the prescribed layer 3 packet information, including determining a switching operation based on at least one of a layer 3 source address and a layer 3 destination address; and

selectively performing layer 2 switching based on the determined absence of the prescribed layer 3 packet information.

2. (ORIGINAL) The method of claim 1, wherein the determining step includes first detecting a presence of an Internet Protocol (IP) header within the layer 2 packet as the prescribed layer 3 packet information.

3. (ORIGINAL) The method of claim 2, wherein the step of selectively performing layer 3 switching includes second detecting whether the IP header specifies a prescribed network identifier and a prescribed subnetwork identifier.

4. (ORIGINAL) The method of claim 3, wherein the second detecting step includes comparing a source IP address within the IP header with a table configured for storing a plurality of the prescribed subnetwork identifiers.

5. (ORIGINAL) The method of claim 4, wherein the step of selectively performing layer 3 switching further includes obtaining layer 3 switching information from the table based on a match between subnetwork identifier information within the IP header and a corresponding one of the prescribed subnetwork identifiers.

6. (ORIGINAL) The method of claim 4, wherein the step of selectively performing layer 3 switching further includes dropping the layer 2 packet based on a determined absence of any one of the prescribed subnetwork identifiers within the source IP address.

7. (ORIGINAL) The method of claim 2, wherein the step of selectively performing layer 2 switching includes accessing a layer 2 switching table, based on layer 2 packet information, in response to the determining step determining that the layer 2 packet includes one of an IPX frame and a DECnet frame.

8. (ORIGINAL) The method of claim 1, wherein the step of selectively performing layer 3 switching includes dropping the layer 2 packet in response to determining that the layer 2 packet includes a time to live (TTL) field having a value equal to zero.

9. (ORIGINAL) The method of claim 8, wherein the step of selectively performing layer 3 switching includes:

obtaining layer 3 switching information based on the determined presence of the prescribed layer 3 packet information and based on determining that the TTL field has a value greater than zero; and

decrementing the TTL field prior to outputting the layer 2 packet based on the obtained layer 3 switching information.

10. (ORIGINAL) The method of claim 9, wherein the step of selectively performing layer 3 switching further includes:

second determining whether the layer 2 packet includes a destination MAC address specifying a router and a destination IP address specifying a network node within a prescribed subnetwork; and

selectively replacing the destination MAC address specifying the router with a second MAC address specifying the network node, based on the second determining step.

11. (ORIGINAL) The method of claim 10, wherein the step of selectively performing layer 3 switching further includes recalculating an IP checksum and MAC cyclic redundancy check based on the selective replacement of the destination MAC address with a second MAC address.

12. (ORIGINAL) The method of claim 1, wherein the step of selectively performing layer 3 switching includes:

determining a presence of a valid subnetwork identifier within the prescribed layer 3 packet information; and

obtaining layer 3 switching information from one of a first table configured for storing switching entries for respective prescribed subnetwork identifiers, and a second table configured for storing switching entries for respective Internet protocol (IP) addresses, based on whether the prescribed layer 3 packet information includes the valid subnetwork identifier.

13. (ORIGINAL) The method of claim 12, wherein the obtaining step includes accessing the switching information from a selected one of the switching entries in the first table in response to detecting the valid subnetwork identifier within the prescribed layer 3 packet information.

14. (ORIGINAL) An integrated network switch having a switching module comprising:

an evaluation module configured for evaluating a presence of layer 3 packet information within a received layer 2 packet, the evaluation module configured for identifying selected layer 3 switching functions to be perfomed based on the determined presence of prescribed data within the layer 3 packet information;

an address table configured for storing switching entries, each switching entry configured for storing a layer 2 network address, a layer 3 network address, and corresponding switching information;

an address lookup module configured for searching the switching entries based on at least one of the layer 3 packet information and layer 2 address information in the received layer 2 packet; and

an output module configured for generating a switching decision based on the searching of the switching entries by the address lookup module and the evaluation of the presence of layer 3 packet information.

15. (ORIGINAL) The switch of claim 14, wherein the evaluation module includes:

a rules queue configured for generating status information for the received layer 2 packet; and

an ingress module configured for parsing the received layer 2 packet for layer 2 address information and layer 3 address information and determining whether the received layer 2 packet should be dropped based on the layer 2 address information, the evaluation of the presence of layer 3 packet information, and the status information.

16. (ORIGINAL) The switch of claim 15, wherein the ingress module is configured for identifying within the received layer 2 packet a media access control (MAC) source address, a MAC destination address, an Internet Protocol (IP) source address, an IP destination address, and a nonzero time to live (TTL) field.

17. (ORIGINAL) The switch of claim 16, wherein the ingress module is configured for dropping the layer 2 packet in response to detecting the TTL field having a zero value.

18. (ORIGINAL) The switch of claim 16, wherein the address lookup module includes a source address lookup module configured for selectively storing the MAC source address and

corresponding IP source address of a determined non-router network node having transmitted the received layer 2 packet.

19. (ORIGINAL) The switch of claim 18, further comprising a subnetwork table configured for storing switching entries each specifying a subnetwork identifier and a corresponding switching information, the address lookup module further including a destination address module configured for obtaining the switching information from a selected switching entry of one of address table and the subnetwork table based on at least one of the IP destination address and the MAC destination address.

20. (ORIGINAL) The switch of claim 14, wherein the output module assigns the switching decision a prescribed priority based on the identified selected layer 3 switching functions to be performed based on the determined presence of the prescribed data within the layer 3 packet information.

21. (ORIGINAL) The switch of claim 20, wherein the output module decrements a detected nonzero time to live (TTL) field within the layer 3 packet information.

22. (ORIGINAL) The switch of claim 20, wherein the output module replaces a destination MAC address in the received layer 2 packet, determined as corresponding to a layer 2 router address, with a second MAC address based on a detected destination IP address in the layer 3 packet information specifying a second network node identified in one of the switching entries.

23. (NEW) The method of claim 1, wherein the integrated network switch is implemented on a single integrated chip that perfoms each of the steps of determining, selectively performing layer 3 switching, and selectively performing layer 2 switching.

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24. (NEW) The method of claim 14, wherein the integrated network switch is implemented on a single integrated chip.